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GENERAL MANAGEMENT ASSISTANCE CONTRACT (GMAC)

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Mngazana Estuary: Mangrove Conservation, Timber Production

Grant No. 0049-0402-G-GA18

Institute of Natural Resources

This report was produced for review by the USAID. It was prepared as a performance milestone under Mega-Tech, Inc.'s prime contract. The contents of this report address activities performed under USAID/South Africa's Strategic Objective No. 6: Increased Access to Shelter and Environmentally Sound Municipal Services

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Activity Summary and achievements:

The key objective of this grant program was to enhance the sustainability of the Mngazana Mangroves that are heavily relied upon by the local rural households for building material, and to a lesser extent, for firewood to meet household energy needs. The two main project activities involved developing a management system to encourage sustainable use and management of the Mangroves, and secondly, to investigate alternative economic opportunities to reduce dependency on the Mangroves and create incentives for management.

The attached Grant Activity Completion Report and Management Plan present the program and its achievements in more detail.

Contents of this report:

1. Grant Activity Completion Report (May 2005)
2. Mngazana Mangrove Management Plan (October 2004)

Grant Activity Completion Report

1. Name of Organisation	Institute of Natural Resources
2. Grant Activity	Closeout of GMAC Grant No. 0049-0402-G-GA18 (Management of the Mngazana Mangroves)
<p>3. Briefly describe the grant objectives achievements and impact as a result of the grant activities implemented during the grant period.</p> <p>The key objective was to enhance the sustainability of the Mngazana Mangroves that are heavily relied on by the local rural households for building material and to a lesser extent for firewood to meet household energy needs. The two main project activities involved developing a management system to encourage sustainable use and management of the Mangroves and, secondly, to investigate alternative economic opportunities to reduce dependency on the Mangroves and create incentives for management.</p> <p>Socio-economic and biophysical investigations into issues surrounding the utilization and sustainable management of the Mngazana Mangroves (20 km south of Port St Johns on the Wild Coast of the Eastern Cape) were undertaken during the course of this project. The outcomes of these investigations were used to inform the drafting of a management plan to be implemented by the Mngazana Mangrove Management Forum. This Forum was constituted through the Eastern Cape Estuaries Management Programme and includes local communities, local, provincial, and national government, private sector and traditional authorities working together towards sustainable management of the Mangroves and Estuary. The outcome of this has been the successful drafting and implementation of a co-management system at Mngazana, one of four pilot initiatives in the Eastern Cape. The experiences and achievement at Mngazana have been recognized by a range of stakeholders (including Department of Environment Affairs and Toursim's Marine and Coastal Management) as a strategic intervention and many of the outcomes and lessons learned are being used to inform similar initiatives.</p> <p>The second component of the project (investigate alternative economic opportunities to reduce dependency on the mangroves and create incentives for management) involved the establishment of a beekeeping and honey production operation in the Mangroves at Mngazana, owned and operated by local households. A number of local men and women were nominated by the Mngazana Mangrove Management Forum for training as beekeepers. They were supplied with all the necessary beekeeping equipment, and the beekeeping operations established. The initiative has met with a number of challenges, including theft of equipment and honey. As a result there has been attrition among the individuals originally trained However a core group of four remains and they are expected to produce their first honey flow this season. Mangrove honey is a specialty honey and will be bottled and sold at local tourism outlets at a premium price.</p>	

Grant Activity Completion Report

4. Briefly discuss the implementation process, including lessons learned and recommendations

The project was implemented in close cooperation with the other initiatives in the Mngazana area, so as to build on and compliment these other long term projects. This involved close cooperation with the Eastern Cape Estuaries Management Programme (a joint initiative between the INR and the University of KwaZulu-Natal) as well as the research activities being undertaken by the University of Port Elizabeth. The contributions to management planning significantly boosted the progress made towards establishing and implementing sustainable management at the estuary. Progress has been as follows:

- A detailed management plan has been prepared in participation with local households and the Management Forum.
- A training session was organized, during which representatives from the Department of Water Affairs presented to the Forum the policies and requirements prescribed in the National Forests Act, and the implications for the use of the mangroves. This training session was very well attended and was greatly appreciated by the community members who highlighted the need for awareness and understanding of policy at community level. The project team is currently trying to facilitate a similar session by representatives from the Provincial Environmental Department.
- The project team worked with the Management Forum to implement the management plan. To date these activities have mainly focused on zonation of the mangroves into different use and protection zones (This work is ongoing with additional funding secured from DEAT).
- Economic incentives established include the establishment of the bee-keeping businesses which is operational. In addition, funding was raised for the establishment of two canoe trail enterprises owned and operated by the local communities.
- Ongoing support and mentorship has been provided to the beekeepers to ensure that they are prepared for the start of the honey season.
- These initiatives have not yet achieved complete independence and ongoing support and mentorship is required for both the management and honey production initiatives. Additional resources have been sought and some funding has now been secured from the Norway/South Africa Agreement (NORSA) through the Department of Environmental Affairs and Tourism (Marine and Coastal Management).

Some of the key lessons learned have included:

- Benefits must exceed costs
Efforts should be focused on the creation of diverse economic opportunities that provide substitutes to existing forms of livelihoods before any resource use management action resulting in social or local economic instability is initiated.
- Legitimate, accountable and responsible structures are essential
Although the management planning process may, at times, seem tedious, it is a worthwhile investment because it is during this process that issues relating to the legitimacy, accountability and responsibility of the cooperative management structure are thoroughly discussed and agreed by stakeholders.
- Common objectives must be developed between partners
Experience has shown that it is easier for participants to set common objectives and to work towards the attainment of those objectives if cooperative management was initiated by stakeholders themselves who then invited external intervention for facilitation purposes. Setting common objectives is fundamental for cooperative management success; however it should be seen as an outcome of a process and not an event.
- Training, capacity building and empowerment of local people is essential
While participants feel they are learning that is incentive enough to participate in the cooperative management process in the short term. In the long term local capacity must be developed for true empowerment and effective co-management.
- Alternative economic opportunities must be established as incentives
Establishing economic incentives, whether as a means of providing alternate economic opportunities or simply as mechanisms to improve stakeholder benefits and returns from resources, is a key tool in the cooperative management process.
- Support of external agents is essential but dependency must be avoided
External agents are essential in order to diffuse tensions, build trust and respect, support organizational development, impart knowledge and understanding and facilitate a learning process, and assist with financial resourcing. Once the required organizational capacity, expertise, direction and resourcing are achieved the external agent should exit the system or simply retain an observer role.
- Participatory research, monitoring and evaluation should be a core principle
Participation results in a sense of ownership and a level of pride within the local community. As a result they are willing and able to stand up and take ownership and responsibility for the management of the resource to a level that would not have been possible if the local users were mere passive recipients of the information.

Grant Activity Completion Report

5. Public Dissemination: GMAC requires that all grant activity deliverable(s) of the grant activity (e.g., a report or survey) must be made available to the general public. Briefly discuss how the grants activities and results were made accessible to interested parties.

All the reports produced during the course of the project have been given INR investigational report numbers and are made available to the general public through the INR on request. In addition, copies of the management plan were distributed to interested and affected parties, including all the members of the Mngazana Mangrove Management Forum (local communities, local, provincial, and national government, private sector and traditional authorities).

The information generated through this project has also been used to inform other complimentary projects developing cooperative management systems for estuaries in the Eastern Cape. The Mngazana Mangrove Management Plan has been disseminated to these projects and is referenced in a number of integrated reports.

Signature of Grantee

Mander

Date

10.5.05

MNGAZANA MANGROVE MANAGEMENT PLAN

October 2004

Prepared for

USAID



**Department Environment Affairs
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1 INTRODUCTION AND ACKNOWLEDGEMENTS

The drafting of this management plan is the result of initiatives aimed at the conservation and sustainable utilisation of the Mngazana Mangroves, and the socio-economic development of local communities. The Institute of Natural Resources (INR) was commissioned to undertake these initiatives, which were made possible through funding from the following agencies and Government Departments:

- USAID (administered by MegaTech)
- National Department of Environmental Affairs and Tourism (Marine and Coastal Management)
- Norwegian Government through the NORSA Agreement

Drafting the Mngazana Mangroves Management Plan has been a participative process that has involved a range of stakeholders and interested and affected parties, including:

- Representatives of local communities and traditional authorities
- Department of Water Affairs and Forestry
- Provincial Department of Economic and Environmental Affairs
- National Department of Environmental Affairs and Tourism
- Department of Land Affairs
- Researchers from the University of KwaZulu-Natal and University of Port Elizabeth
- The Institute of Natural Resources

Sections A 1, 2 and 3.1 of this management plan have drawn extensively on a review undertaken by John de Wet towards a dissertation (in prep.) in partial fulfilment of a degree of Masters in Environment and Development, through the School of Applied Environmental Sciences at the University of KwaZulu-Natal.

The results of an ecological and land use survey undertaken by Catherine Traynor (University of KwaZulu-Natal) were used extensively in Sections B 1.3 and 2, to guide and inform the identification of management issues. Additional funding survey was also provided for this survey by the Southern African Consortium of Universities for Development and Environment - Sustainable Land Use Project (SACUDE-SLUSE).

Support and input into the investigations and drafting of the management plan was also received from a number of staff and students of the University of KwaZulu-Natal

(Pietermaritzburg) particularly Nevil Quinn, Andrew Booth and Garth Glaum, with mapping and GIS support from Riyad Ismail.

Information from studies conducted in the Mngazana Mangroves by Janine Adams, Anusha Rajkaran and Vuyani Dayimani of the University of Port Elizabeth was also extensively used.

SECTION A

1 INTRODUCTION TO MANGROVES

During the 1960s and 1970s, significant reductions of mangroves took place in South Africa, largely as a result of poorly planned infrastructure developments such as the harbour developments at Durban and Richards Bay (Steinke 1999). Mangroves were once considered wastelands which could be converted to alternative profitable economic developments (De Wet 2004). The lack of awareness of the value of mangroves resulted in policies that promoted the utilisation of the mangroves and the conversion of the areas surrounding estuaries to alternative uses. It is now recognised that mangroves form an important part of the estuary ecosystems in which they occur. Estuaries and mangroves fulfil an important ecological role and are among the most productive ecosystems on earth. They also play an important role in supporting the livelihoods of local communities, while also having significant aesthetic and recreational value (De Wet 2004).

Mangroves are wide-spread in the Indo-Pacific region and are also found along the coast of Africa, the Caribbean, the Gulf of Mexico and South America. In South Africa, mangroves are restricted to bays and estuaries along the coasts of the Eastern Cape, northwards of East London, and into KwaZulu-Natal. They occur in 37 estuaries and cover approximately 1 688 hectares (Dayimani 2002).

1.1 The ecology and functioning of mangroves

Mangroves are salt-tolerant trees or shrubs that grow in the tidal, saline wetlands on the coastlines of tropical, subtropical and temperate areas of the world, and provide the basis for complex and extensive ecosystems where terrestrial, freshwater and marine ecosystems meet (Steinke 1999).

Mangroves usually occur between sea level and the high spring-water tide level. At high tide, their roots and lower stems may be submerged. The extent of the submersion is dependent on the tide cycle and the position of the mangroves on the shore. Mangroves supply air to their roots by above-ground root systems that are

shallow, but spread out laterally to anchor the tree in the soft mud and sediment. Small holes on the root surface allow oxygen to be absorbed and transferred to the below ground system. Mangroves occur in a continually changing environment. The constantly varying conditions under which they grow are brought about by changing levels of salinity and water movements that affect temperature, nutrients and oxygen levels in the water and soil. Their roots may be immersed in water of high salinity at high tide and inundated in almost fresh water when the rivers or rain bring water from catchment areas (De Wet 2004).

The most common mangrove in South Africa is *Avicennia marina*, or the White Mangrove. The White Mangrove is generally regarded as a pioneer mangrove. It is large and spreading when it grows along the water's edge, but in a closed community, can be tall and upright, reaching a height of 10 meters (m). It has wide environmental tolerance because it establishes itself rapidly both in open areas and in the soft substratum near the water's edge. Another common mangrove is *Bruguiera gymnorhiza*, or the Black Mangrove, which can reach a height of 10-15 m but in southern estuaries seldom exceeds 5 m. This species is not regarded as a pioneer species except in estuaries where the river mouth closes occasionally. Black Mangroves prefer higher ground where inundation is restricted mainly to spring tides. *Rhizophora mucronata*, or the Red Mangrove, is not as common as the White or Black Mangroves. The trees produce a straight trunk but are not as tall as the Black Mangrove. Red Mangrove trees have aerial roots that originate on the trunk above the ground, arch away and then enter the soil. The flowers of the Black Mangrove are bird pollinated and insects pollinate the flowers of the White and Red Mangroves (Sgwabe *et al* 2004).

Mangroves reproduce through a process known as vivipary in which the seeds germinate and develop into seedlings while still on the adult tree (Figure 1). These seeds or propagules are adapted for dispersal by water and can drift for months before taking root (De Wet 2004).



Figure 1: Germinated seedling dropped from adult plant

A feature of mangroves is the speed at which the root grows once it is dispersed from the parent plant, taking approximately two weeks to establish itself (De Wet 2004).

The fauna found in the mangrove swamps include sesarmid, fiddler and giant mud species of crab, mudskipper and gastropods. Crabs play a significant role in the estuarine food web as they break down mangrove litter during feeding. The giant mud crab itself is also widely harvested as a food source. Mangroves also provide anchorage to filter-feeding organisms such as oysters, barnacles and mussels. In addition, mangroves and sea-grass beds support numerous species of fish and other marine organisms such as prawns and shrimps. Mullet are the most common fish, and they consume large amounts of detrital material. Other fish species feed on zooplankton, smaller invertebrates and smaller fish in estuaries. De Wet (2004) reports that the high utilisation of mangroves by fish and invertebrate species can be attributed to the following:

- food abundance
- high primary productivity of mangroves
- refuge from predation offer to larvae and juvenile fish
- hydro-dynamic ability of mangroves to retain immigrating larvae and juveniles in their early life stages when they might otherwise be swept away by tides.

1.2 Functions of mangroves

Mangroves supply a number of environmental goods (directly and indirectly) and are recognised as forming a significant part of the coastal environment as a result of the role they play in estuaries (De Wet 2004).

Mangroves provide important support to the subsistence livelihoods of surrounding communities, which depend on them for food, construction material, and firewood. Mangroves in many other areas are also used to produce charcoal; as a source of tannins and dyes; to build furniture, household utensils, boats and fish-traps; in teas and medicines; as raw material for crafts; and the propagules can also be eaten (De Wet 2004).

1.3 Threats faced by estuaries and mangroves

Mangroves are considered to be among the rarest and most threatened indigenous forests in South Africa (Sgwabe *et al* 2004). Since they occur in estuaries they are subject to the same threats as estuaries. Direct threats to mangroves include:

- Overexploitation of resources
- Grazing and trampling by domestic livestock
- Conversion to salt pans
- Decreasing water quality and quantity in estuaries

2 AN INTRODUCTION TO THE MNGAZANA ESTUARY AND MANGROVES



The Mngazana Estuary is located just south of Port St Johns, on the Wild Coast of the Eastern Cape Province (Figure 2).

Figure 2: Overview of the Mngazana Estuary and mangroves

The estuary receives its freshwater from the Mngazana River. The permanently open estuary is 6 km in length and enters the sea close to a rocky outcrop (Branch and Grindley 1979). The marine inflow into the Mngazana Estuary is determined by tidal exchange, and a rocky headland has pinned the estuary mouth, preventing its expansion. The estuary has a range of salinities close to that of sea water, and is recorded as usually being 30-35 ‰ (De Wet 2004). The full length of the estuary is subject to tidal exchange. The estuary is well-oxygenated, unpolluted and the water quality is relatively good (Sgwabe *et al* 2004).

The Mngazana Mangrove (Figure 3) is the third largest in the country and covers approximately 118 ha (Sgwabe *et al* 2004). Recent studies have suggested that 36 ha of the forests have been lost since 1961; the rate of loss between 1961 and 1995 was 0.5 ha/year but increased to 2.7 ha/year in the subsequent seven years (Adams *et al* 2004). The direct cause of this loss has not yet been determined but it is likely that it is a combination of causes including environmental changes (e.g. flow of water entering the estuary and associated fluctuations in the salinity levels) and human impact (e.g. harvesting).



Figure 3: View of the Mngazana Mangroves

The vegetation of the Mngazana Estuary comprises a number of plant communities, with the mangrove swamp as the main feature (Figure 4). The mangrove forest comprises three species (Sgwabe *et al* 2004):

- White Mangrove (*Avicennia marina*)
- Black Mangrove (*Bruguiera gymnorhiza*)
- Red Mangrove (*Rhizophora mucronata*)

There are also sea-grass and salt-marsh communities, with dune forests along the east bank of the estuary mouth.

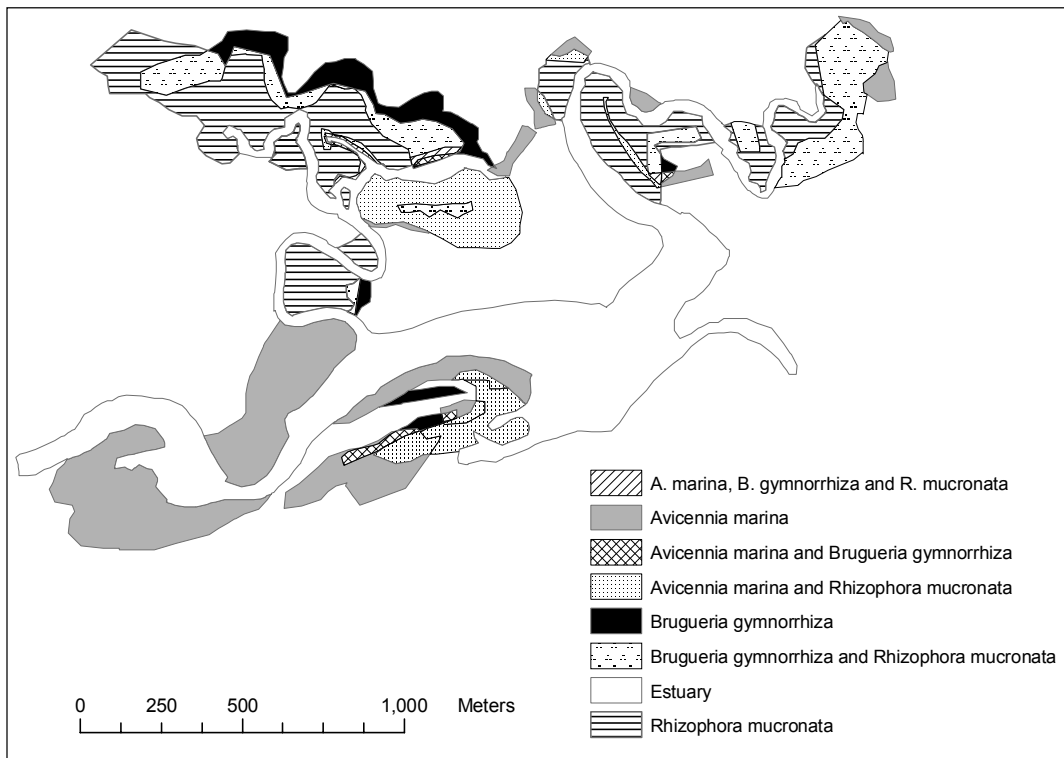


Figure 4: Distribution of mangroves species as mapped from 1995 aerial photography (Rajkaran *et al* 2003)

Mangroves fulfil a central role in the ecology of the Mngazana Estuary by trapping silt, clearing the river and allowing the conversion of nutrients into plant material (Sgwabe *et al* 2004). The estuary hosts a rich diversity of both invertebrate and fish communities. De Wet (2004) reports that 209 invertebrates and 62 fish species, of which many are juveniles of tropical species, have been identified to date. Three species of Red Data listed crabs occur in the Mngazana Estuary (Sgwabe *et al* 2004).

The fauna in the vicinity of the Mngazana Estuary is poorly documented, but may correlate with the Wild Coast fauna - reptiles, birds and small mammals like water mongoose, bush buck, bush pigs and blue duiker (De Wet 2004). Over 100 species of birds have been recorded including rare species such as the Mangrove kingfisher (Sgwabe *et al* 2004).

The greatest threat in the Mngazana Estuary is the removal of mangroves for harvesting poles (Figure 5), which the local communities use mainly in house construction (De Wet 2004). A study by Rajkaran *et al* (2003) found that with selective harvesting of trees of certain diameters at breast height (DBH) natural regeneration of the forest is taking place. Harvesting is being done throughout the forest, but especially in easily accessible areas close to non-mangrove areas with



open spaces and dry land. In these areas bundles of harvested poles are stacked and cattle or boats usually transport the bundles.

Figure 5: Harvested poles waiting to be transported out of the mangroves

Creeks act as a physical barrier to movement and accessing areas for harvesting at high tide, but are shallow enough to access at low tide. Species composition varies across that mangrove and also plays a part in the selection of sites for harvesting by locals. Minimal harvesting is done in White-Mangrove-dominated areas with intensive harvesting in areas where Red Mangroves are most plentiful. Rajkaran *et al* (2004) estimates the rate of harvesting is approximately 550 poles per month and concludes that about 80% of the forest showed signs of medium to high harvesting intensity, with the other 20% harvested at low intensity. De Wet (2004) reports that studies have suggested that 28% of the forest is inaccessible and non-harvested.

Adams *et al* (2004) reports that there are a number of other impacts, such as trampling of juvenile trees by harvesters and livestock, that is leading to loss of regeneration capacity and could have consequences for the food web and ecological functioning of the estuary ecosystem.

3 CONTEXT OF THE MNGAZANA MANGROVES AND SURROUNDS

The land on which the Mngazana Mangroves are located is a combination of state land (administered by Department of Water Affairs and Forestry) and communal tenure land under the Mvumelwano-Unzi Tribal Authority (Figure 6).

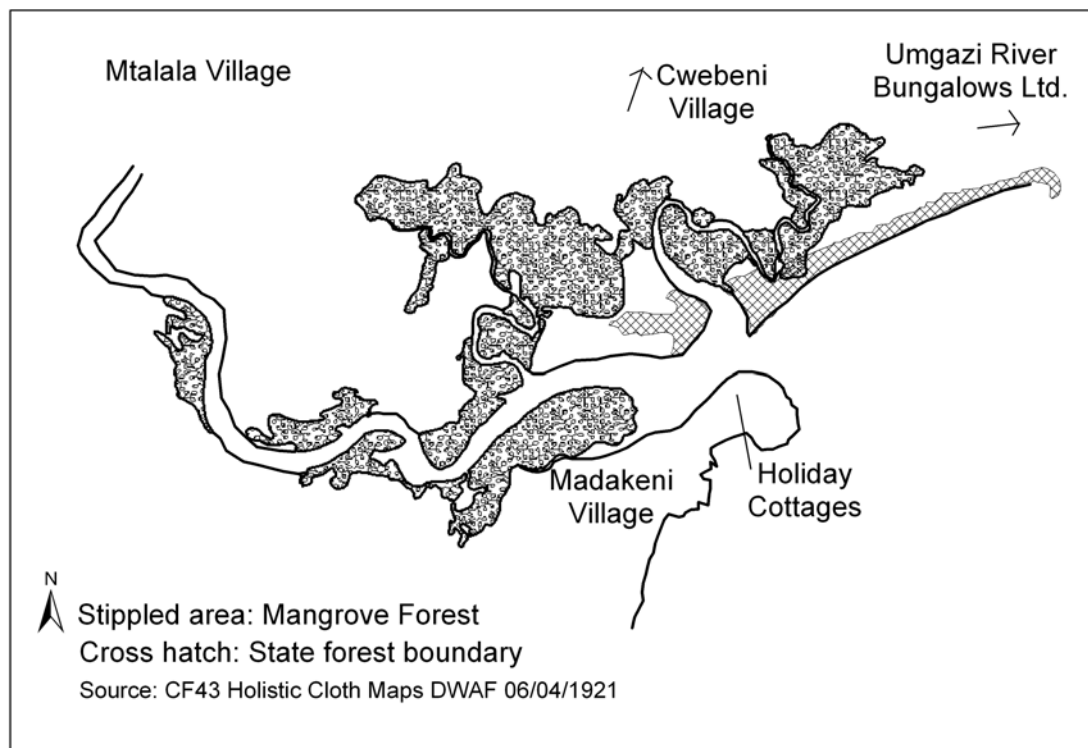


Figure 6: Location and state boundaries

3.1 Socio-Economic Context

There are three villages in the vicinity of the estuary: Madakeni, Cwebeni and Mtalala villages (Figure 6). These villages are rural communities who largely maintain a subsistence way of life. On the south bank of the estuary are a number of privately owned holiday cottages, some of which, after a moratorium on land grants, were constructed illegally in the 1990s.

A socio-economic survey undertaken in 2003 (Ford 2003) indicated that only 5% of the members of local households are formally employed. A further 5% appear to be employed on a temporary and mainly seasonal basis. Of the households interviewed, 65% reported earning cash incomes of less than R200 a month. There is little opportunity for formal employment in the area, and this leads to migrant labour with remittances from migrants providing an important source of income (Ford 2003). Old-age pensions and government welfare grants are also an important source of income, with Ford's study (2003) finding that 18% of the population benefits from these payouts.

The low cash incomes increase the dependency of the villagers on direct access and utilisation of the natural resource base to supplement livelihood needs. Of the households surveyed 96% indicated a reliance on direct access and utilisation of a range of estuarine and mangrove resources (Ford 2003).

Subsistence farming is practiced by the majority (95%) of households who, in spite of poor agricultural conditions, grow crops and graze cattle. Slash and burn agriculture takes place with cultivation of crops on the estuary flood plain increasing pressure on the mangroves (Ford 2003). Seafood collected from the estuary supplements the diet of the households and is also sold to hotels, with mussels and a variety of fish species identified as being popular. Amongst these are stonebream, spotted and striped grunter, mullet and kob. Bait (primarily mud prawns, red bait and sea cucumber) is collected and sold to recreational fishermen at the nearby Umngazi River Bungalows (Ford 2003).

Mangroves are an important source of building materials for the construction of houses (Figure 7). Five percent of the households surveyed indicated that they also harvested mangroves to generate incomes, with poles being sold to neighbouring households and adjacent communities. More than 75% of the respondents in the survey indicated that Red and Black Mangroves are predominant used in the construction of houses. Red and Black Mangroves are preferred species because they are straight and durable, with the White Mangrove seldom used. Mangrove poles are used as vertical supports for the houses constructed while thinner poles are used as horizontal supports. These poles form a framework around which mud is

packed. Mangrove poles are valued as building material due to their durability and resistance to termites and other insects (Sgwabe *et al* 2004).



Figure 7: Use of mangrove species for house construction

Other trees like Sneezewood, Lemonwood and Umzimbeet are used to a lesser extent in construction, often together with mangroves (Ford 2003). Households also collect limited amounts firewood from the mangrove, although the preferred species, Mimosa and Sneezewood, are collected from the areas surrounding the mangroves (Ford 2003).

A number of cottages have been built on the south side of the estuary by non-community residents who obtained permission to build and occupy them from the local traditional authorities. These cottages are not occupied permanently but used as holiday or weekend residences. These cottage owners mainly use the estuary and mangroves for recreation, including swimming, fishing and power boating. There are approximately 48 cottages on the south bank at Madakeni and one on the north bank at Cwebeni. The legality of many of the cottages is under dispute. The current policy is that those constructed before 1994 with the permission of the traditional authority are legal, however those constructed subsequently even with tacit

authorisation from the traditional authority are illegal. The Department of Environment Affairs and Tourism is currently approaching these illegal cottage owners to resolve the matter and where necessary is taking the matter to court to ensure the removal of the illegal cottages and the rehabilitation of the sites.

3.2 Political and Institutional Context of the Area

There are a large number of organisations, both government and non-government, with interests in the management of the Mngazana Mangroves. The organisations are outlined below.

3.2.1 National Government

In line with the South African Government structure, national, provincial and local government have an interest in the Mngazana Estuary. At a national level, the Department of Environmental Affairs and Tourism (DEAT) and the Department of Water Affairs and Forestry (DWAF) are the important Departments with policy relating to the use and management of mangrove resources. DEAT administers various pieces of environmental legislation, including the National Environmental Management Act (No 107 of 1998) and the Marine Living Resources Act (No 18 of 1998), and has overall responsibility for the management of South Africa's coastline. The White Paper for Sustainable Coastal Development contains the overarching framework for developments along the coast.

DWAF plays an important role in the regulation and management of activities and utilisation of estuaries. It administers the National Water Act (No 36 of 1998), in terms of which estuaries are considered part of the country's water resources. The National Forests Act (No 84 of 1998) regulates forestry management and seeks to promote both the sustainable management and development of forests for the benefit of all, and the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes. Mangroves fall within the classification of natural forests. The implication is that a license is required to collect and remove any mangroves, except if there is a Ministerial exemption. However, harvesting of mangrove resources without permits is taking place irrespective of the law (Sgwabe *et al* 2004). In addition, provision is made for the Minister to identify specially protected trees in which case there is no provision for the Ministerial

exemption. Both Black and Red Mangroves are on this list of protected trees (Sgwabe *et al* 2004).

3.2.2 Provincial Government

The Environmental Directorate of the Department of Economic Affairs, Environment and Tourism (DEAET) is responsible for a number of aspects of coastal management in the Eastern Cape Province, including policy formulation and the reviewing of policies and development plans. The Department is also responsible for environmental law enforcement and monitoring compliance with the Environmental Impact Assessment requirements in the Environment Conservation Act. (No 73 of 1989).

The Division of Land Use Affairs (Projects and Planning) of the Department of Agriculture (previously, Agriculture and Land Affairs) in the Eastern Cape Province is responsible for carrying out land use planning and generating information on the natural resources of the province. It has an interest in providing accessible, good governance through sound, comprehensive and integrated development programmes so as to optimise the utilisation of the Eastern Cape's socio-economic and natural resources. The Department has an interest in the management of the Mngazana Mangroves and surrounds as a natural resource located in its area.

3.2.3 Local Government

Mngazana falls within the OR Tambo District Council and the Port St. Johns Local Municipality. Developments around the estuary will have to be taken into account in the Integrated Development Plans of these District and Local Authorities, as well as the Spatial Development Plans (dealing with land use) and the Water Usage Development Plans (De Wet 2004).

The Mvumelwano-Unzi Tribal Authority, which operates at a local level, controls land tenure and resource use in the areas of the mangrove falling outside of the State Land. The Tribal Authority recognises its role and has representatives on the Mngazana Mangrove Management Forum.

3.2.4 Non-government organisations

➤ ***The Mngazana Mangrove Management Forum***

The Mngazana Mangrove Management Forum was constituted in 2002 as part of the Eastern Cape Estuaries Management Programme. This programme was initiated in 1998 with the goal of establishing effective management of a number of estuaries on the Wild Coast, including Mngazana Estuary. The members of the Mngazana Mangrove Management Forum currently include representatives of:

- Umanyano Community Trust
- Gomolo Trust
- Port St Johns Local Municipality
- Provincial Department of Economic Affairs, Environment and Tourism
- Department of Water Affairs and Forestry
- Department of Land Affairs

The local private cottage owners have also recently been approached to join the Forum, and are currently nominating a representative.

The Forum's vision is that "the local community and Government should co-operate to ensure the protection and sustainable management of the mangroves, through a joint management structure, a mangrove utilisation plan, provision of affordable alternatives, increased benefits to the local community and improved knowledge about the management of the mangroves themselves".

Through the Forum, a number of projects have been initiated to increase local incomes and reduce the dependency on harvesting of the mangroves:

- A canoe trail that has been established on the estuary
- A beekeeping and honey production enterprise has been established

➤ ***Research and development organisations***

One of the objectives of the Mngazana Mangrove Management Forum is to increase the knowledge of stakeholders regarding mangrove management. A number of organisations and institutions have been involved in a work in the Mangroves and surrounds that has informed and guided on the management of the Mangroves. To date, these have included:

- Institute of Natural Resources

- University of KwaZulu-Natal
- University of Port Elizabeth
- PondoCrop
- EU Wild Coast Programme
- Water Research Commission

It is important that in future all organisations and institutions wishing to undertake research or projects in the Mangroves or surrounds do so in consultation and collaboration with the Forum to ensure that all new initiatives comply with the Forum's vision and goals as well as the management plan.

3.3 Policies Impacting on the Mngazana Mangroves and Surrounds

Many aspects of mangrove and estuary management are governed by existing policies. The three core policies that are most relevant are:

- The White Paper for Sustainable Coastal Development, that sets out the overall framework in which coastal development takes place.
- The Wild Coast Tourism development policy, that sets out the framework in which tourism development of the Wild Coast takes place.
- The White Paper on a National Water Policy, that sets out the policy of the government for the management of both quality and quantity of South Africa's water resources including estuaries.

3.3.1 The White Paper for Sustainable Coastal Development (April 2000)

The White Paper for Sustainable Coastal Development sets out the national government's policy for coastal management. The four key messages of this new coastal policy are:

- The value of the coast must be recognised and incorporated into decision-making
- Coastal management should be people centred with an emphasis placed on the 'powerful contribution that can be made to reconstruction and development in South Africa through facilitating sustainable coastal development'
- The coast should be viewed as a system, and coastal management should be co-ordinated and integrated.
- Coastal management should be conducted in a facilitatory and co-operative manner. Responsibilities should be shared with a range of actors.

3.3.2 Wild Coast Tourism Development Policy (February 2001)

The Wild Coast Tourism Development Policy provides policy guidelines for the development of tourism on the Wild Coast. The policy applies to the strip of land from the high water mark to 1000m inland and the tidal portions of estuaries. The policy identifies key issues hindering tourism development along the Wild Coast, and provides policy guidelines for tourism development through the following:

- Tourism development and management guidelines
- Environmental policy guidelines for tourism development and management
- Institutional arrangements necessary for the implementation of the policy
- Procedures for tourism development applications

3.3.3 White paper on a National Water Policy (April 1997)

The Policy recognises that as water users impact on the environment, an integrated approach to management at catchment level is required. The need for water to support tourism, recreation and job creation is acknowledged. Through this policy the National Government is committed to carry out its public trust obligations in a way which:

- Guarantees access to sufficient water for basic domestic needs,
- Makes sure that the requirements of the environment are met, and
- Makes provision for the transfer of water between catchments.

3.4 Legislation Impacting on the Mngazana Mangroves and Surrounds

This section covers the various provincial and national laws that govern the Mangroves and its surrounds.

3.4.1 National Forests Act (No 84 of 1998)

Any uncertainties as to whether mangroves qualify as a forest type were resolved under the new classification system developed by DWAF in 2002. The new classification identifies 24 forest types and four azonal types, including mangroves. It is also reported that mangroves are amongst the rarest and most threatened forest types in South Africa. The implication of this classification is that all Mangrove Forests, regardless of land ownership, are protected under Section 7 of the National Forest Act (NFA).

The NFA lays out the government policy on forestry management. Some of the core purposes of the Act are to:

- Promote the sustainable management and development of forests for the benefit of all,
- Promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes, and
- Promote community participation in the management of indigenous forestry resources.

Section 7 of the Act prohibits the destruction of indigenous trees in any natural forest, including mangroves, without a license. Thus;

(1) No person may-

- (a) cut, disturb, damage or destroy any indigenous, living tree in a natural forest; or
- (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any other forest product derived from a tree contemplated in paragraph (a) except in terms of-
 - (i) a licence issued under subsection (4) or section 23; or
 - (ii) an exemption from the provisions of this subsection published by the Minister in the Gazette on the advice of the Council

The NFA also permits the Minister to identify 'protected trees' and similar restrictions as indicated above are imposed for protected trees. At present, the Black Mangrove has been placed on the draft list of protected trees and there are discussions underway to have Red Mangrove placed on the draft list. The draft list is likely to be Gazetted in the near future at which point both these species will become protected trees.

3.4.2 National Environmental Management Act (No 107 of 1998)

The National Environmental Management Act (NEMA) gives effect to the White Paper on environmental management policy for South Africa. The Act provides a framework for the integration of the environmental management activities of the various spheres of government.

An important feature of NEMA is that it makes provision for Environmental Management Co-operation Agreements in compliance with the principles laid down in

the Act. In the context of mangroves and estuaries, this will improve the interaction between organs of state and communities and in turn promote the sustainable use of the resource.

NEMA also includes a section that gives effect to the objectives of integrated environmental management. This section allows activities that may significantly impact on the environment (Chapter 5) to be identified by the Minister of Environmental Affairs as requiring authorisation prior to implementation. No regulations have yet been passed in terms of this section. However, Environmental Impact Assessment Regulations were promulgated on 5 September 1997 in terms of the Environment Conservation Act (No 73 of 1989). Eventually these regulations will be superseded by regulations under the National Environmental Management Act.

3.4.3 The Sea Shore Act (No 21 of 1935)

The Sea Shore Act declares the State President as owner of the sea and the sea-shore, where the sea-shore is defined as the water and the land between the low-water mark and the high water mark. Any part of a river that experiences a tidal influence is included in the definition of the seashore (including mangroves). Most estuaries on the Wild Coast are included in the definition of the sea in the Sea Shore Act and hence are governed by that Act.

3.4.4 Marine Living Resources Act (No 18 of 1998)

The Marine Living Resources Act regulates the marine living resources use within South African waters, including estuaries. In terms of this Act, no one can engage in any form of marine living resource use (including catch and release fishing) without a permit. In addition, the Act allows for the further regulation of marine living resource use through a variety of mechanisms.

3.4.5 The National Water Act (No 36 of 1998)

The National Water Act regulates the nation's water resources, which include rivers and estuaries. A major feature of the Act is that it provides for the management of water resources on a catchment basis. To give effect to catchment management, the Act provides for the establishment of catchment management agencies and the development of catchment management strategies. A second key feature of the Act is that it provides for a reserve to be determined and maintained for water resources. The Reserve is defined by the Act as the quantity and quality of water required to:

- Supply basic human needs of people who are (or will) be extracting water from the relevant water resource; and
- Protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resources.

3.4.6 Municipal Systems Act (No 32 of 2000)

The Municipal Systems Act provides for necessary principles and mechanisms to enable municipalities to move progressively towards the social and economic upliftment of local communities, in harmony with their local natural environment. It establishes an enabling framework for the core processes of planning. The Act requires municipalities to exercise their executive and legislative authority within the system of co-operative governance envisaged in section 41 of the Constitution. It also supports the notion of community participation. For example, section 16 (1) (a) of the Act requires municipalities to encourage and create conditions for the local community, such as those living near estuaries, to participate in the activities of the municipality. These activities include preparation and implementation of the municipality's Integrated Development Plan (section 26). The Port St Johns IDP process is briefly discussed in the following section.

3.4.7 Environmental Conservation Decree No 9 of 1992 (Transkei)

The Environmental Conservation Decree covers a number of aspects of environmental conservation including marine and terrestrial issues. Of particular significance is that the Decree establishes a coastal conservation area 1000 m wide, measured:

- In relation to the sea, as distinct from tidal lagoon, from the high water mark
- In relation to a tidal river or tidal lagoon, from the highest water level reached during ordinary storms during the stormiest period of the year, excluding exceptional or abnormal floods.

For any tourism development to take place in this zone, permission would be required from the Eastern Cape Government.

3.4.8 Environmental Conservation Decree No 9 of 1992 (Transkei)

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significance is that the Decree establishes a coastal conservation area 1000 m wide, measured:

- In relation to the sea, as distinct from tidal lagoon, from the high water mark
- In relation to a tidal river or tidal lagoon, from the highest water level reached during ordinary storms during the stormiest period of the year, excluding exceptional or abnormal floods.

For any tourism development to take place in this zone, permission would be required from the Eastern Cape Government.

3.4.9 The Port St Johns Integrated Development Plan

The significant determinant of the Integrated Development Plan (IDP) process is the Municipal Systems Act (section 3.7). The core principles are outlined in section 26 of the Act. As the name implies, the IDP is intended to provide for integration of social, economic and environmental considerations into development plans that promote the welfare of people living within the municipality. The natural resource base comprising the sea, land and the physical and biological diversity associated with these interacting systems, should be included in the IDP. The Mngazana Mangroves and Estuary is recognised in the provincial tourism policy as a node in which nature plays a prominent role in determining the nature of development. This should be reflected in this IDP and should guide local development initiatives.

SECTION B

1 PREPARATION OF THE MANAGEMENT PLAN

The objective of this management plan is to identify the main impacts and threats to the sustainability of the Mngazana Mangroves (Figure 8), while taking into consideration the social, political and environmental contexts in which the mangroves are currently utilised and managed.



Figure 8: Areas of bare ground visible in the 2002 aerial photograph attributed to unsustainable utilisation of the mangroves (Rajkaran *et al* 2003)

The information used to guide the management plan has therefore been compiled from three main sources:

- The Mngazana Mangrove Management Forum
- Information obtained from a socio-economic survey conducted in 2003
- Information obtained from a land use survey conducted in 2004

In addition, information was also drawn from complimentary studies and research that have been undertaken in the area by a range of institutions, including the University of Port Elizabeth.

1.1 Mngazana Mangrove Management Forum

The vision that was drafted by the Mngazana Mangrove Management Forum states that:

Local communities and Government should co-operate to ensure the protection and sustainable management of the mangroves, through a joint management structure, a mangrove utilization plan, provision of affordable alternatives, increased benefits to the local community and improved knowledge about the management of the mangroves themselves.

The objectives stated in constitution of the Mngazana Mangrove Management Forum (Annexure 1) are:

- a) To give effect to the above mentioned vision, which includes protecting and preserving the natural eco-systems and bio-diversity of the Mngazana Estuary and its natural surrounds, especially its mangrove forests, including its historical and cultural assets and scenic beauty for future generations.
- b) Ensuring that inappropriate development projects or other activities do not degrade the Estuary's environment, or detract from that area's beauty, tranquillity and sense of place.
- c) Promoting an holistic, sustainable and mutually beneficial interaction between the Estuary's bordering communities and the environment itself for the benefit of all such residents and visitors alike.

The goals of the Forum include:

- A mangrove integrated utilization plan is prepared and implemented.
- Affordable alternatives to the harvesting of mangroves are identified and appropriate projects implemented.
- Methods of increasing benefits to the local community from the mangroves are identified and appropriate projects implemented.
- The knowledge of local stakeholders regarding mangrove management is increased.

1.2 Identification of needs and current utilisation

The results of a socio-economic survey conducted in 2003 were used to identify a range of needs that are currently met by the consumptive and non-consumptive use of the Mngazana Mangroves, and to record current patterns of utilisation. In addition, information on the environmental services supplied by mangroves was obtained from a range of literature. Table 1 contains a summary of the goods and services identified as being currently supplied by the Mngazana Mangroves. Conserving these goods and sustaining the services provided the framework for identifying the management requirements used in drafting of the management plan.

Table 1: Goods and services obtained from the Mngazana Mangroves (adapted from De Wet 2004)

Goods		Services
Consumptive	Non-consumptive	
<ul style="list-style-type: none"> ○ Fuel <ul style="list-style-type: none"> - Firewood ○ Construction <ul style="list-style-type: none"> - Timber for houses - Thatch, matting ○ Fishing <ul style="list-style-type: none"> - Poles for fish traps - Bait ○ Food <ul style="list-style-type: none"> - Fish - Crustaceans - Honey ○ Household items <ul style="list-style-type: none"> - Furniture - Utensils ○ Other products <ul style="list-style-type: none"> - Medicines from bark and leaves - Fish for aquariums - Fodder for livestock 	<ul style="list-style-type: none"> ○ Aesthetic features ○ Recreational and tourism activities <ul style="list-style-type: none"> - Canoe trails - Bird watching - Water sport ○ Propagules for re-afforestation ○ Education and scientific information 	<ul style="list-style-type: none"> ○ Protection against floods ○ Control of shoreline and riverbank erosion ○ Nursery, breeding and feeding grounds for fish and crustaceans ○ Recycling of waste, pollution, organic matter and nutrients ○ Export of organic matter and nutrients to marine environment ○ Ground water recharge ○ Carbon sink ○ Water recycling ○ Biodiversity

1.3 Land use survey and analysis

A land-use survey was carried out within the Mngazana Mangrove forest in June and July 2004. The survey mapped the main activities that occur within the mangrove forests, these included: mangrove tree harvesting, crab catching, fishing and bait collection, grazing and access routes. The activities were mapped through direct observations and consultation with Forum representatives who participated in the survey. Results from the survey were used to produce maps which highlighted the main areas where the different activities took place. These maps were then

presented to the Mngazana Mangrove Management Forum on a meeting on Thursday 7th October 2004 (Figure 9). A large aerial photograph of the Mangrove Estuary was used as a base map.

The Forum representatives who assisted with the land-use survey explained the aerial photograph so that all the Forum Members could orientate themselves on the maps. Transparencies showing the areas mapped in the land-use survey were overlaid on the photograph one at a time.



Figure 9: Consultation on findings of the land use survey



Figure 10: A Forum Member of the draws in additional access routes

For each of the activities mapped, the Forum was asked to (Figure 10):

- Comment on the distribution pattern shown for the activity.
- Add in additional areas for that activity that the survey had missed.
- Erase any areas they disagreed with.

The changes made by the Forum Members were added to the results of the land-use survey. The results for these are illustrated in the accompanying maps (Figure 12).

2 MANAGEMENT ISSUES AND ACTIVITIES

The management issues raised and identified in the processes described in Section B1 have been summarised in Sections 2.1 to 2.3 below. These issues were then workshopped with the Forum (Figure 11) to identify the appropriate management activities and to reach agreement on the management responsibilities for implementation. The Forum identified that many of the issues raised were linked or related to other issues, and the links between these issues are highlighted in the second column of the issues tables (Table 2 – 4). These links were used to integrate a complete list of issues. The resultant management activities (Table 5) propose an holistic and integrated management approach rather individual activities to address each issue. The proposed management activities and potential agents responsible for implementation are outlined in Section 2.4.



Figure 11: Workshopping the management issues and draft plan with the Mngazana Mangrove Management Forum

Figure 12 presents a number of maps that were drafted during the course of the investigation into management issues and activities. These will be used to guide and inform the planning of zones and regulation of activities during implementation of the management plan.

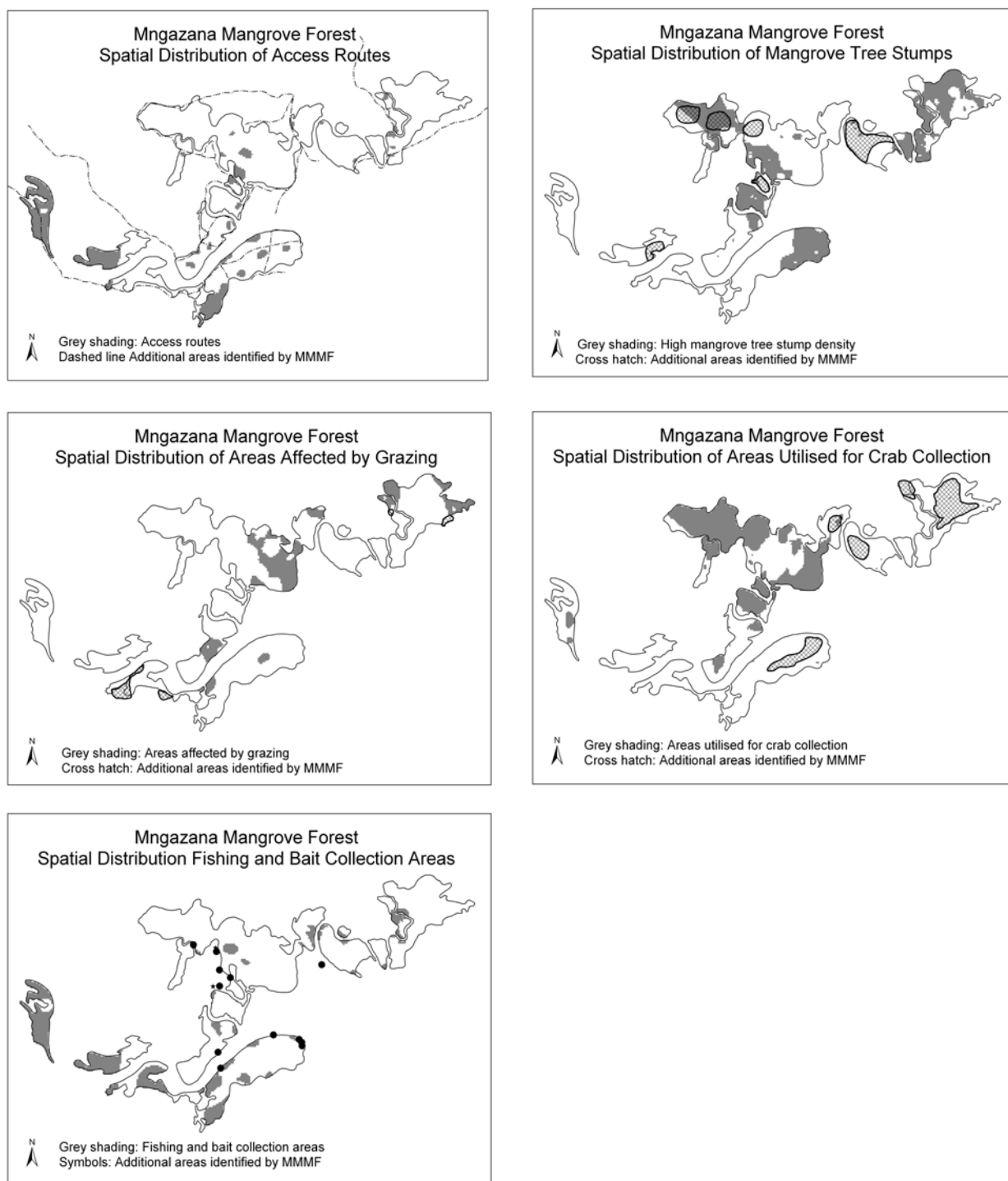


Figure 12: Maps demonstrating the location of impacted areas as a guide for management planning

2.1 Forum workshops and meetings

The issues listed in this section (Table 2) were raised by the Management Forum during a series of workshops held to discuss and prepare the management plan.

Table 2: Management issues identified by the Management Forum

	LINKS WITH OTHER MANAGEMENT ISSUES
1. It is important to have working relations between Government and community for managing mangroves	2, 3
2. Community agrees with conserving the mangroves because they recognise that economic benefits can be generated. They also recognise that the Government also wants this, and they must therefore find a way to work together	1, 3
3. The Government should share ideas and inform the community of opportunities for economic benefit from the mangroves so that they can pursue these opportunities jointly rather than with outsiders	1, 2, 25
4. The Mngazana Mangrove Management Forum should have specific duties in the management of the mangroves for which it is responsible and people must consult them for authorisation on these management issues	9
5. There is a need for economic enterprises to create incentives for management of the mangroves by the community. There is also a need to create access to alternative resource to reduce pressure on the mangroves e.g.: <ul style="list-style-type: none"> • Block making • Planting Gum trees 	7, 11, 25
6. Community awareness needs to be developed about how to conserve the mangroves e.g. impacts of the harvesting of: <ul style="list-style-type: none"> • Prawns • Crabs • Bait • Fishing 	26, 27
7. There is a need to identify how to raise funds to start new development initiatives to reduce pressure on mangroves	5, 11, 25
8. There should be a system of zoning the mangroves into use zones so that there can be rotation between the zones avoiding over harvesting of specific areas across all seasons	9,20,22
9. There should be the introduction of permits for use of certain resources	4,28,29
10. There is a need to introduce initiatives such as the cultivation	17, 21

of medicinal plants to reduce pressure on mangroves	
11. There is a need to create awareness of the importance of mangrove conservation so that people use it sparingly <ul style="list-style-type: none"> • Create awareness and access to alternatives to mangrove resource 	5
12. Need to access funds to support block making enterprise to reduce pressure on the mangroves	5, 18,19
13. There is a problem with people chopping trees from the mangroves but not taking them away because they have no transport and this is resulting in waste: <ul style="list-style-type: none"> • There need to be experts on the Forum who can help to calculate how many poles people need to construct a specific house and permits are issued for only that number of poles to reduce waste 	24
14. Need to investigate charging an entrance fee for tourists wanting to come to the mangrove and to see other attractions – fee would help create awareness of conservation area and also pay for management costs. But there would be a need to create something to justify the entrance fee, such as a board walk	5, 7, 25
15. Need to train people to implement management rules and be paid to implement/manage: <ul style="list-style-type: none"> • If there are no perceived benefits, people wont take the effort to implement the management plan • Those responsible for implementing and enforcing the management plan need training so that they can have authority and required knowledge 	11, 5
16. The community is willing to start planting trees (woodlot) and have identified a potential site, so as to create access to alternative resources and reduce the pressure on the mangroves	12, 18, 19
17. Forum needs to incorporate or consult with users such as herbalist so that areas can be identified where medicinal plant can be grown to reduce pressure on mangroves	10, 21
18. Business plans need to be prepared to try to secure funding for enterprise development that reduces pressure	5,12,19
19. Interim activities e.g.: buying poles for building to supplement poles from mangroves must be encouraged to reduce pressure in harvesting of the mangroves in the interim, while the management plan is being finalised	12,18

2.2 Socio-economic surveys and previous investigations

The issues listed in this section (Table 3) were identified during analysis of the socio-economic survey results and from investigations undertaken during the formation of the Management Forum.

Table 3: Management issues identified during the socio-economic survey

	LINKS WITH OTHER MANAGEMENT ISSUES
20. Zonation of areas is required so that there can be: <ul style="list-style-type: none"> • Specific protection for certain high value areas • Restricted access to certain areas e.g. those needing rehabilitation • Open access e.g. to those deemed suitable for harvesting 	8, 9, 22
21. Rehabilitation of degraded areas is required	10, 17
22. Need to control over-harvesting of specific pole sizes that are almost completely removed from some areas (small trees of Black and Red Mangroves that are selected for horizontal poles in housing construction and bigger sizes of White Mangroves)	8, 9, 20
23. Manage impacts of pathways and tramping by people and livestock	30, 31
24. Manage wastefulness of harvested poles left rotting in the mangrove forest	13
25. Need to manage impacts that new enterprises might have on the mangroves	3, 5, 7
26. Management of impacts from harvesting non-timber products e.g. shrimps	6,27

2.3 Land Use Survey

The issues listed in this section (Table 4) were during the ecological and land use survey undertaken in 2004.

Table 4: Management issues identified during the land use survey

	LINKS WITH OTHER MANAGEMENT ISSUES
27. Need to create awareness about sustainable harvesting techniques for mangrove resources	6, 26
28. Need to investigate differentiating between rules for domestic use of versus commercial (selling) use of mangrove resources	4, 9, 29
29. Different rules for local people versus outsiders	4, 9, 28
30. Pathways through different areas i.e. through middle and round sensitive banks	23,32
31. Impacts of livestock tramping and eating small seedlings	23
32. Impacts from tourists and cottage owners e.g. high speed motor boats equals negative impacts on sensitive banks	23, 30

2.4 Management Activities and Responsibilities

Table 5 details the management issues and activities identified and agreed to by the Mngazana Mangrove Management Forum as forming the foundation and framework for the management of the Mngazana Mangroves.

Table 5: Management issues and activities for the sustainable management of the Mngazana Mangroves

ISSUE NO.	MANAGEMENT ISSUES	MANAGEMENT ACTION	RESPONSIBILITIES
8 9 20 22	Zonation of areas is required so that there can be: <ul style="list-style-type: none"> • Specific protection for high value areas • Restricted access to certain areas e.g. those needing rehabilitation • Open access e.g. to those deemed suitable for harvesting 	<ul style="list-style-type: none"> - Map ecological and land use surveys results - Identify zones - Development management activities to enforce and awareness compliance 	<ul style="list-style-type: none"> - Management Forum with support from implementing agencies and stakeholders such as INR , researchers, local businesses and enterprises
1 2 3	It is important to have working relations between Government and community for managing mangroves <ul style="list-style-type: none"> • Community and Government to work together to meet mutual objectives of conservation and development 	<ul style="list-style-type: none"> - Develop working relationship with all stakeholders through Forum - Each group/ represented on Forum to nominate a designated contact person to act and conduit for communications and effective liaison 	<ul style="list-style-type: none"> - Designated contact people listed in Annexure 2
5 7 11 12 18 25	Establish economic enterprises to create incentives for management of the mangroves by the community. There is also a need to create access to alternative resource to reduce pressure on the mangroves e.g.: <ul style="list-style-type: none"> • Block making • Planting Gum trees <p>Need to raise funds to start new development</p>	<ul style="list-style-type: none"> - Forum to lead the identification of potential enterprises and alternatives - Forum to engage support for development of concept notes and business plans needed for raising funding for implementation - Feasibility assessments must be undertaken for all proposed developments and submitted to Forum for approval - Forum will only approve those enterprises that 	<ul style="list-style-type: none"> - Forum - Forum - Stakeholders/Forum - Forum

	initiatives	<ul style="list-style-type: none"> - meet all policy and legislative requirements - Database of potential funders to be compiled for submission of business plans 	<ul style="list-style-type: none"> - Forum with support from INR
6 26 27	<p>Develop community awareness on how to conserve the mangroves e.g. impacts of the harvesting of:</p> <ul style="list-style-type: none"> • Prawns • Crabs • Bait • Fishing <p>Need to establish and implement sustainable levels of harvesting and sustainable harvesting techniques</p>	<ul style="list-style-type: none"> - Set up community meetings and workshops - Identify topics and hold first meeting - Identify stakeholders support for information and invite to workshop the participants 	<ul style="list-style-type: none"> - Forum particularly with support from Government Departments on the Forum
4 9 20 22 28 29	Introduction of permits for use of certain resources	<ul style="list-style-type: none"> - Consultation and agreement reached with DWAF and DEAT regarding opportunities for allocation of authority to Forum for issuing permits for harvesting resources from mangroves, particularly DWAF for harvesting poles - Training for Forum members to develop an understanding of legislation and permit requirements - Permits include names of people who will collect and transport to make them accountable to reduce waste - People operating small business enterprise on the mangrove, must apply for permit to undertake activity 	<ul style="list-style-type: none"> - Forum, DWAF & DEAET - Forum, DWAF & DEAET (e.g. DWAF's Forest Officers training) - Forum & stakeholders - Everyone
5 7 14 25	Create tourism infrastructure and attractions to justify the introduction of an entrance fee for admission to mangroves, e.g. boardwalk	<ul style="list-style-type: none"> - Undertake feasibility study, develop business plan and obtain necessary authorisation - Get buy in from tourism operators (e.g. B&Bs, Hotels and Backpackers) into concept and 	<ul style="list-style-type: none"> - Forum & stakeholders

		assist in implementation	
5 7 12 18 19	Continue implementing interim activities e.g: Block making to reduce pressure in harvesting of the mangroves	<ul style="list-style-type: none"> - Additional interim activities to be investigated - All new activities to be register with Management Forum 	<ul style="list-style-type: none"> - Forum
3 5 7 11 25	Identify and manage impacts from new enterprises, e.g. canoeing, beekeeping.	<ul style="list-style-type: none"> - Village development committees to decide on new development /activities at local level - All new developments to be registered with Management Forum and impacts identified to ensure it complies with management plan goals and objectives - Forum must link appropriate Government Departments to ensure authorisation is compliant with legislation - The Forum to act as an Umbrella Body and go between with village committees, private individuals and Government Departments 	<ul style="list-style-type: none"> - Village development committees - Forum - Forum and Government - Forum and Government
4 9 28 29	Investigate differentiating between rules for domestic use of versus commercial (selling) use of mangrove resources	<ul style="list-style-type: none"> - Permits issued by Forum must be within sustainable levels - Issuing of permits for commercial use must not compromise subsistence needs of local community 	<ul style="list-style-type: none"> - Forum - Forum
4 9 28 29	Differentiate between rules for local people versus outsiders in terms of access and utilisation of mangroves	<ul style="list-style-type: none"> - Awareness created among outsiders that they will need to apply for permits - Monitors trained to look out and monitor activities to ensure compliance 	<ul style="list-style-type: none"> - Forum, Traditional Authority and Monitors
23 30 32	Create awareness among tourists and cottage owners of Impacts arising from their activities e.g. high speed motor boats have a negative impact on the river banks	<ul style="list-style-type: none"> - Invite cottage owners to join Forum and to nominate a representative to attend Forum meetings - Identify and implement actions to prevent negative impacts 	<ul style="list-style-type: none"> - Forum
30 31	Access by foot, carts, sledges and vehicles can disturb the soil surface and reduce seedling	<ul style="list-style-type: none"> - Controlling access routes and paths - Reduce total number of footpaths 	<ul style="list-style-type: none"> - Forum

33 35 36	regeneration	<ul style="list-style-type: none"> - Designate one main route as opposed to many - Where possible use routes on the landward side of the mangrove swamps at the transition between saltmarsh and coastal forest 	
8 9 20 22 34	Areas with high densities of mangrove tree stumps may be over harvested and the areas highly disturbed	<p>Controlling mangrove tree harvesting (red and black mangrove):</p> <ul style="list-style-type: none"> - Restrict harvesting in the areas with high stump densities, to allow seedlings to establish and become adult trees 	- Forum
23 30 33 35	Damage from harvesting of branches of white mangroves harvested (probably for fuelwood or to harvest honey from wild hives)	<p>Control harvesting of white mangroves:</p> <ul style="list-style-type: none"> - Only dead branches collected for fuel wood - Reduce destructive harvesting of wild honey 	- Forum
23 30 31 35 36	Trampling disturbs the soil surface and reduces seedling establishment. Grazing can damage young saplings. Landward edges of the mangroves tend to be most affected and areas in proximity to bare ground, which is used for access	<p>Stop or reduce grazing by cattle, goats and donkeys:</p> <ul style="list-style-type: none"> - Grazing animals should be prevented from entering the mangrove forests through better herding 	- Forum and households
30 31 32 37	Damage to mud banks and threatening of crab populations from crab and bait collection	<ul style="list-style-type: none"> - Reduce permissible area - Restrictions e.g. no female crabs with eggs to be collected. 	- Forum
30 38	Favoured areas on the seaward and creek edges frequently used by many villagers resulting in high impact and damage	<ul style="list-style-type: none"> - Reduce permissible areas for access through zonation - Designate specific routes to favoured sites to reduce impact on surrounding areas 	- Forum

3 IMPLEMENTATION OF THE MANAGEMENT PLAN

The next stage in the management process is to develop and **implementation strategy** and the **capacity of the Forum** to implement the management plan.

The following generic components have been highlighted (during phase one of the Eastern Cape estuaries Management Programme, funded by the Water Research Commission) as critical to the implementation of the management plan:

- Achieving co-operative governance and management
- Agreement and demarcation of boundaries and responsibilities according to land tenure and ownership
- Strategies for biodiversity protection and determination of sustainable levels of utilisation
- Strategy for rehabilitation of degraded areas
- Establishment and management of enterprises
- Monitoring and evaluation of management outcomes
- Capacity building of Management Forum and local community members
- Research and knowledge management to inform and guide revision of the management and implementation plans

For example the implementation phase should include a process to identify priority areas for activities in the mangroves and define areas where activity can be curtailed/ceased in order to improve overall sustainability of mangrove utilisation. The Forum suggested that some areas subjected to ‘over harvesting’ could have mangrove tree harvesting restricted and be allowed to regenerate. In other areas not currently subjected to high harvesting levels mangrove tree harvesting could be permitted. It was also suggested that such zones could vary with time, i.e. a form of rotational management. The Forum discussed which areas would be most suitable for access and which should be restricted. No definite areas were agreed to during this phase, and the process of reaching agreements will need to continue during the implementation of the management plan. It will also need to be workshopped with the broader communities to ensure the zones are practical and they, as far as possible, have the support of the communities as a whole.

The next phase will also involve the development of the business plans for enterprises aimed at generating incomes for local households and creating access to alternative resource in order to reduce pressure on the mangroves. A number of enterprise opportunities have already been identified by the Forum and it is important that start-up funding and the necessary authorisations be obtained for these enterprises. The implementation phase will therefore also involve the identification of appropriate support organisations to assist the development of capacity within the Forum.

4 REFERENCES

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ANNEXURE 1

CONSTITUTION

of the

Mngazana Mangrove Management Forum

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CONSTITUTION

INTRODUCTION

The natural beauty, diversity and sense of place of the Mngazana Estuary and its surrounds need to be protected for future generations.

One of the key assets of the Estuary can be found in its extensive mangrove forests. It is an important local, provincial and national asset, and therefore, the wise conservation and development of this area will result in effective biodiversity protection of the resource and economic development and improved livelihoods for local residents.

A vision for future management constructed at a participatory workshop of the Mngazana stakeholders held in April 2003 is that:

Local communities and Government should co-operate to ensure the protection and sustainable management of the mangroves, through a joint management structure, a mangrove utilization plan, provision of affordable alternatives, increased benefits to the local community and improved knowledge about the management of the mangroves themselves.

This vision will guide the way in which the Forum operates.

NAME

The name of the Forum shall be the **Mngazana Mangrove Management Forum**

OBJECTIVES OF THE FORUM:

- (1) To give effect to the above mentioned vision, which includes protecting and preserving the natural eco-systems and bio-diversity of the Mngazana Estuary and its natural surrounds, especially its mangrove forests, including its historical and cultural assets and scenic beauty for future generations;
- (2) Ensuring that inappropriate development projects or other activities do not degrade the Estuary's environment, or detract from that area's beauty, tranquillity and sense of place; and
- (3) Promoting an holistic, sustainable and mutually beneficial interaction between the Estuary's bordering communities and the environment itself for the benefit of all such residents, and visitors alike;
- (4) Without in any way limiting the general nature of the Objectives stated in the clauses above, the Goals of the Forum shall include that:
 - (a) A mangrove integrated utilization plan is prepared and implemented
 - (b) Affordable alternatives to the harvesting of mangroves are identified and appropriate projects implemented
 - (c) Methods of increasing benefits to the local community from the mangroves are identified and appropriate projects implemented

- (d) The knowledge of local stakeholders regarding mangrove management is increased.

FORUM FUNDS

- (1) Any and all funds generated by the Forum shall as soon as is practically possible be deposited into the Forum's Trust bank account (which is required to be opened in the name of the Forum as a matter of priority) for fair distribution, reasonable use and sensible investment.
- (2) Decisions relating to such distribution, use or investment shall be made by the Executive Committee (EC) in accordance with specific financial plans and strategies, to be developed and implemented by the EC in consultation with the Members of the Forum at a general meeting, the details of which shall be accurately recorded as ADDENDUM C hereto.
- (3) The Executive Committee shall ensure that the Forum keeps proper books of account. Financial Statements (including Capital and Revenue accounts) shall be prepared at least once a year, in accordance with generally accepted accounting principles and practice, and shall reflect clearly the affairs of the Forum. The books of accounts and Financial Statements shall be audited and certified in the customary manner by an independent practising Chartered Accountant.
- (4) A copy of the Annual Financial Statements shall be made available to each of the Members as soon as possible after the close of the financial year.

FORUM POWERS & FUNCTIONS

- (1) The Forum shall have all such powers as may be necessary to enable it to achieve its Objects, which powers shall vest in a body to be known as the Executive Committee (EC), which Committee shall be entitled to act on behalf of the Forum in all matters affecting the conduct of its affairs, in furtherance of its powers and Objects, and subject to the terms and conditions of this Constitution.
- (2) Such powers shall include all things which are reasonably in keeping with the Forum's vision and which reasonably and legitimately assist the Forum in achieving its Objectives.
- (3) In the event that the Forum's objective of avoiding conflict wherever possible is transgressed, and no readily apparent solution is forthcoming, any or all such matters shall be raised at a relevant meeting of the Forum in order for a resolution to be passed by way of a majority vote, which resolution shall be final and binding on all members of the Forum.
- (4) Both the general and specific Functions of the Forum shall be required to be proposed, considered and agreed at the first Annual General Meeting of the Forum, and so soon as is reasonably possible thereafter, reduced to writing as ADDENDUM B hereto.

THE MEMBERS

- (1) Members of the Forum shall be limited, by invitation of the Forum to an appropriate meeting, to those of an organisational and/or institutional nature (individuals *per se* will not be considered for membership), the names and representative signatures of which shall appear as ADDENDUM A to this Constitution.

- (2) Any Members of the Forum – particularly those of a non-government organizational structure - may choose to commit themselves to Forum membership in an *ex officio* capacity only, devoid therefore, of all formal voting powers in relation to Forum matters, which membership arrangement (viz. 'ex officio'), must be clearly indicated next to the name of any such members in ADDENDUM A hereto.
- (3) Membership of the Forum may be granted, suspended or cancelled at the entire discretion of the Members of the Forum in a General Meeting.

THE EXECUTIVE COMMITTEE

- (1) The Executive Committee (EC) of the Forum shall be limited to
- (2) The EC shall comprise representatives each of the
- (3) Each appointed representative member (individual) of the Executive Committee shall have the power to appoint one of its other individual members, to act in his or her place during a temporary absence or inability to act as member, or in the event that he or she is forced to withdraw as a representative member.
- (4) The EC shall have all usual powers necessary to lawfully carry out the business of the Forum in accordance with the terms and conditions of this Constitution as already set out herein, and shall be obliged to do so in an open and transparent manner for the benefit of all of the Members of the Forum.
- (5) In addition, the EC powers shall specifically include the following:
 - (i) The capacity to co-opt the assistance of or request the advice of any or all other relevant third parties (including individuals), either on *an ad hoc* basis, or at the time of any relevant meetings, in respect of matters relevant to achieving the objectives of the Forum and in accordance with the terms and conditions of this Constitution.
 - (ii) To be familiar with and assume responsibility for the management and implementation of the Mngazana Mangrove Integrated Utilization Plan.
- (6) In the event of any dispute arising of whatsoever nature between the members of the EC, the said members shall first be obliged to make all practical, reasonable and concerted efforts to resolve the issue amicably by way of consensus, failing which the matter will be referred to the Members of the Forum at a Special General Meeting for a decision, which decision shall be binding upon the EC.

PROCEDURE AT EXECUTIVE COMMITTEE MEETINGS

- (1) The Executive Committee shall, upon reasonable notice to its members by the Chairperson, meet every month, unless a **Special** Executive Committee Meeting is decided upon for the purposes of expediting projects or urgent matters.
- (2) The Chairperson, or in his or her absence, the Vice-Chairperson, shall chair all meetings of the Executive Committee which he or she attends. In the absence of the Chairperson and the Vice-Chairperson, the remaining members of the Executive Committee may elect a chairperson from their number.

- (3) Its members may from time to time, as occasion may require, and recorded in ADDENDUM D hereto, elect from their numbers:
- (a) A Chairperson
 - (b) A Vice-Chairperson ;
 - (c) A Secretary ;
 - (d) A Treasurer.
 - (e) Other
- (4) At a meeting of the Executive Committee, a quorum shall require at least one representative of each member organisation to be present. Each member shall have one (1) vote, and a majority of votes will be sufficient for any resolution to be passed. In the event of an equality of votes the Chairperson shall have a casting or second vote.
- (5) Proper minutes shall be kept of the proceedings of the Executive Committee, including a record of the persons present at each meeting.

GENERAL MEETINGS

(1) Annual General Meetings

- (a) An Annual General Meeting of the Forum shall be held within three (3) months, after the end of each financial year; subject to the condition that no less than twenty one (21) day's prior written notice of such meeting shall be given to all Members entitled to attend it.
- (b) The Annual General Meeting shall be convened by the Chairperson.
- (c) The business of an Annual General Meeting shall include, *inter alia*:
- (i) the election of a person to chair the meeting, when necessary;
 - (ii) the presentation and adoption of the Annual Report of the Chairperson that reports on activities and provides an assessment of progress towards achieving its goals and objectives;
 - (iii) the consideration of the Annual Financial Statements;
 - (iv) the consideration of the Mngazana Estuary Integrated Utilization Plan, and any amendments thereto.
 - (v) the election of representatives of Members to serve on the Executive Committee for the next year, provided that all Executive Committee officials, including the Chairperson, shall retain office for one year, and thereafter, shall make themselves available for and be entitled to reelection should they so wish.
 - (vi) the appointment of Auditors;
 - (vii) reporting on management initiatives, for the purposes of monitoring and compliance
 - (viii) such other matters as may be considered appropriate, including the raising of disputes where applicable between Members, and establishing the best possible solution.
- (d) Each member shall have one vote, save for the Chairperson who shall have a casting or second vote in the event of a deadlock, provided there is a quorum of at least 60% of Forum members present, and there is at least one representative member of each of the Executive Committee member organisations present.

- (e) The votes shall be counted and the outcome shall be the decision or resolution of the Forum.

(2) Special General Meetings

- (a) Special General Meetings of the Forum may be convened at any time but are reserved for matters requiring urgent attention, including (if necessary) the removal of any Executive Committee office bearer, including the Chairperson, at the written request of:
 - (i) The Executive Committee
 - (ii) The Chairperson; or
 - (iii) Any Three (3) Members of the Forum.
- (b) The rules governing the procedure at Annual General Meetings, including voting and decision-making, shall apply to the Special General Meetings, save that the time limits for notification of the meeting shall not apply in the case of Special General meetings, and shall be called as soon as is practicably possible.**
- (c) Each member shall have one vote, save for the Chairperson who shall have a casting or second vote in the event of a deadlock.
- (d) The votes shall be counted and the outcome shall be the decision or resolution of the Forum.

NOTICES

- (1) Notices of all meetings provided for in this Constitution, shall be delivered personally, or sent by telefax or e-mail or prepaid ordinary post, to the last address notified by each person concerned to the Forum, or in such other manner as the Executive Committee believes is expedient.

SIGNATURES

- (1) Any document requiring signature on behalf of the Forum shall be signed by at least Two
 - (2) Members of the Executive Committee, one of whom shall be either the Chairperson or the Treasurer.

LEGAL PERSONALITY, LEGAL ACTION AND CONTRACTS

- (1) The Forum may not enter into contracts, and/or sue or be sued in its own name, until such time as it is formally registered as a specific legal entity.

INDEMNITY

- (1) Subject to the provisions of any relevant statute, each member of the Executive Committee and all other office bearers shall be indemnified by the Forum for all acts done by them in good faith on its behalf.

AMENDMENT

The provisions of this Constitution may be varied (by way of deletion or addition), upon a decision being taken by the Members of the Forum at any relevant Forum Meeting, at which a quorum of 60% of Members is present.

ADDENDUM “A”

1. List of Forum Members:

- a) Umanyano Trust
- b) Gomolo Trust
- c) Port St Johns Local Municipality
- d) Provincial Department of Economic Affairs, Environment and Tourism
- e) Department of Environmental Affairs and Tourism
- f) Department of Water Affairs and Forestry
- g) Department of Land Affairs

ANNEXURE 2

Designated contact people on Mngazana Mangrove Management Forum

NAME	ORGANISATION	TELEPHONE	CELLULAR
Mr Sabelo Mgudlwa	DWAF	047-5648603	0828054181
Mr Gladwell Mpuhlu	DEAET	047-5311191	0833955427
Mr Nicholas Matebese	DLA	047-3525959	0828276021
Councillor Kawu	PSJ Municipality	047-5641207/8	0722994476
Mr Kevin Klette	Cottage Owners	047-5326627	0826598088
Mr Mbulelo Tengwane Mr Nkanyiso Joseph	Madakeni Village		0823535872 0724117950
Mr David Fono Mr L. N Ndamase	Mtalala Village		0721724142 0834762700
Mr Wiseman Sithuko Mrs Nophakamile Vovo	Cwebeni Village		0725321371 0826881061